Amendments to Claims

1. (Currently Amended) A process for manufacturing a multilayer container having a transparent outer layer comprising a first thermoplastic polymer that is transparent in the solid state and at least one inner layer comprising a second thermoplastic polymer, said process comprising the steps of:

(1) heating and co-extruding the first and second thermoplastic polymer to obtain a first and second polymer melt, respectively, wherein at least the first polymer melt is gel-free and homogeneous;

(2) passing the co-extruded polymer melts through a blow molding die to form a multilayer parison having an outer layer formed of the first polymer melt, at least one inner layer formed of the second polymer melt directly bonded to the outer layer, and an inner cavity;

(3) depositing the parison into an open mold;

(4) closing the mold and pinching off the parison at one end in a manner such that the outer layer of the parison is continuous at the pinched point to form a molded parison; and

(5) obtaining the multilayer container by inflating the molded parison into a blow molded structure while simultaneously cooling the blow molded structure to a temperature below about 22°C by applying a first cooling means to the outside of the blow molded structure and a second cooling means to the inside of the blow molded structure, wherein the second cooling means comprises a means for discharging a cold gas under pressure and at a temperature of less than about 20°C into the inner cavity of the parison during the inflation of the molded parison;

wherein the first thermoplastic polymer is a polymer selected from the group consisting of: copolymers of ethylene and alpha, beta-unsaturated carboxylic acids; and derivatives of copolymers of ethylene and alpha, beta-unsaturated carboxylic acids; and

wherein the thickness of the outer layer of the multilayer container is about 1.0 mm to about 5 mm.

2. (Cancelled)

3. (Previously presented) The process of Claim 1 wherein the second polymer melt obtained from step (1) is gel-free and homogeneous.

4. (Currently Amended) The process of Claim 1 wherein the first cooling means is a cooling system that maintains the mold at a temperature of less than 20 °C~~, and the second cooling means comprises a means for discharging a cold gas under pressure into the inner cavity of the parison during the inflation of the molded parison in step (5)~~.

5. (Cancelled)

6. (Currently Amended) The process of Claim ~~5~~ 4 wherein the cold gas is discharged at a temperature of less than about 18 °C.

7. (Original) The process of Claim 6 wherein the cold gas is discharged at a temperature of less than about 15 °C.

8. (Original) The process of Claim 7 wherein the cold gas is discharged at a temperature of less than about 5 °C.

9. (Cancelled)

10. (Currently Amended) The process of Claim ~~9~~ 8 wherein the first thermoplastic polymer is a copolymer of ethylene and an unsaturated carboxylic acid.

11. (Currently Amended) The process of Claim ~~10~~ 8 wherein the first thermoplastic polymer is an ionomer that is a derivative of a copolymer of ethylene and an alpha,beta-unsaturated carboxylic acid.

12. (Previously presented) The process of Claim 11 wherein in step (4), the parison is pinched off by a dual pinching means and the pinched point is flat or tapered at least slightly toward the inner cavity of the blow molded structure.

13-28. (Canceled)

29. (Previously presented) The process of claim 1, wherein the inner surface of the mold comprises surface imperfections.

30. (Canceled)

31. (Previously presented) The process of claim 4, wherein the second cooling means further comprises a means for allowing escape of gas from the inside of the blow molded structure.

32. (Previously presented) The process of claim 4, wherein the second cooling means is a blow-pin, which comprises a nozzle that fits into the opening of the parison cavity and discharges the cold gas into the inner cavity of the parison under pressure.

33. (Previously presented) The process of claim 32, wherein the blow-pin is covered by a cooling jacket over at least 95% of the blow-pin surface, not inclusive of the nozzle.

34. (Previously presented) The process of claim 33, wherein the blow-pin further comprises a channel which is cut into the nozzle, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure.

35. (Previously presented) The process of claim 33, wherein the nozzle of the blow-pin has a rough surface, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure.

36. (New) The process of Claim 8 wherein the second thermoplastic polymer is a polymer selected from the group consisting of: polyolefins; polyesters; polycarbonates; polyurethanes; polyacetals; polyacrylates; copolymer ionomers; polyamides; ethylene/vinyl acetates; and polyvinyl chlorides.

37. (New) The process of Claim 8 wherein the second thermoplastic polymer is a polyolefin selected from the group consisting of: polyethylenes and/or polypropylenes.

38. (New) The process of Claim 1 wherein the second thermoplastic polymer is a polyester.

39. (New) The process of Claim 1 wherein the second thermoplastic polymer is a polycarbonate.

40. (New) The process of claim 31, wherein the blow-pin further comprises a channel which is cut into the nozzle, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure.

41. (New) The process of claim 31, wherein the nozzle of the blow-pin has a rough surface, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure.

42. (New) The process of Claim 1 wherein the first thermoplastic polymer is an ionomer obtained from neutralization of ethylene/(meth)acrylic acid copolymers.

43. (New) The process of Claim 1 wherein the thickness of the outer layer is about 1.5 mm to about 3.5 mm.

44. (New) The process of Claim 1 wherein the thickness of the outer layer is about 2.0 mm to about 3.0 mm.

45. (New) The process of Claim 1 wherein the cold gas is selected from the group consisting of air, helium, neon, argon; or mixtures of any of these gases.

46. (New) The process of Claim 1 wherein the cold gas is air.

47. (New) The process of Claim 8 wherein the cold gas is air.

48. (New) A process for manufacturing a multilayer container having a transparent outer layer comprising a first thermoplastic polymer that is transparent in the solid state and a second thermoplastic polymer, said process comprising the steps of:

(1) heating and co-extruding the first and second thermoplastic polymer to obtain a first and second polymer melt, respectively, wherein at least the first polymer melt is gel-free and homogeneous;

(2) passing the co-extruded polymer melts through a blow molding die to form a multilayer parison having an outer layer formed of the first polymer melt directly bonded to an inner layer formed of the second polymer melt, and an inner cavity;

(3) depositing the parison into an open mold;

(4) closing the mold and pinching off the parison at one end in a manner such that the outer layer of the parison is continuous at the pinched point to form a molded parison; and

(5) obtaining the multilayer container by inflating the molded parison into a blow molded structure while simultaneously cooling the blow molded structure to a temperature below about 22°C by applying a first cooling means to the outside of the blow molded structure and a second cooling means to the inside of the blow molded structure, wherein the second cooling means comprises a means for discharging a cold gas under pressure and at a temperature of less than about 20°C into the inner cavity of the parison during the inflation of the molded parison;

wherein the first thermoplastic polymer is an ionomer that is a derivative of a copolymer of ethylene and an alpha,beta-unsaturated carboxylic acid; and

wherein the thickness of the outer layer of the multilayer container is about 1.0 mm to about 5 mm.

49. (New) The process of Claim 48 wherein the thickness of the outer layer is about 1.5 mm to about 3.5 mm; the cold gas is discharged at a temperature of less than about 5 °C; the cold gas is selected from the group consisting of air, helium, neon, argon; or mixtures of any of these gases; the first thermoplastic polymer is an

ionomer obtained from neutralization of ethylene/(meth)acrylic acid copolymers; the first cooling means is a cooling system that maintains the mold at a temperature of less than 20 °C; the second thermoplastic polymer is a polymer selected from the group consisting of: polyolefins; polyesters; polycarbonates; polyurethanes; polyacetals; polyacrylates; copolymer ionomers; polyamides; ethylene/vinyl acetates; and polyvinyl chlorides; and the first thermoplastic polymer is an ionomer obtained from neutralization of ethylene/(meth)acrylic acid copolymers.

50. (New) The process of Claim 49 wherein the second thermoplastic polymer is a polyolefin selected from the group consisting of: polyethylenes and/or polypropylenes.

51. (New) The process of claim 49, wherein the second cooling means is a blow-pin, which comprises a nozzle that fits into the opening of the parison cavity and discharges the cold gas into the inner cavity of the parison under pressure, the cold gas is air, and the second cooling means further comprises a means for allowing escape of gas from the inside of the blow molded structure selected from the group consisting of: (a) the blow-pin further comprises a channel which is cut into the nozzle, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure, and (b) wherein the nozzle of the blow-pin has a rough surface, thereby further providing the means for allowing the escape of gas from the inside of the blow molded structure.

52. (New) The process of claim 51, wherein the blow-pin is covered by a cooling jacket over at least 95% of the blow-pin surface, not inclusive of the nozzle.

53. (New) The process of Claim 52 wherein the second thermoplastic polymer is a polyolefin selected from the group consisting of: polyethylenes and/or polypropylenes.

54 (New) The process of claim 53, wherein the blow-pin uses an air supply to blow air at a pressure of 3 to 5 kPa, and at a temperature of from –5°C to 5 °C.